



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/828,381	04/05/2001	Song Chen	9824-062-228	1798
38881	7590	01/23/2006	EXAMINER	
DARBY & DARBY P.C. P.O. BOX 5257 NEW YORK, NY 10150-5257			OPIE, GEORGE L	
			ART UNIT	PAPER NUMBER
			2194	

DATE MAILED: 01/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/828,381 Examiner	Chen et al. Art Unit	
	George L. Opie	2194	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

#### Status

- 1)  Responsive to communication(s) filed on 21 October 2005.
- 2a)  This action is FINAL.                    2b)  This action is non-final.
- 3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4)  Claim(s) 1-43, 45, 46, and 48-73 is/are pending in the application.
  - 4a) Of the above claim(s) 42 is/are withdrawn from consideration.
- 5)  Claim(s) 12, 23, 24 and 40 is/are allowed.
- 6)  Claim(s) 1-11, 13-22, 25-39, 41-43, 45, 46, and 48-73 is/are rejected.
- 7)  Claim(s) \_\_\_\_\_ is/are objected to.
- 8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9)  The specification is objected to by the Examiner.
- 10)  The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11)  The proposed drawing correction filed on \_\_\_\_\_ is: a)  approved b)  disapproved.
- 12)  The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. § 119

- 13)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

- a)  All b)  Some \* c)  None of the CERTIFIED copies of the priority documents have been:
1.  received.
  2.  received in Application No. (Series Code / Serial Number) \_\_\_\_\_.
  3.  received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

- 14)  Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(d).
- WILLIAM THOMSON  
SUPERVISORY EXAMINER

#### Attachment(s)

- |   |  |
|---|--|
| 14) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 17) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 15) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 18) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 16) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) _____     | 19) <input type="checkbox"/> Other: _____                                    |

Art Unit: 2126

## DETAILED ACTION

1. The Request for Continued Examination (RCE), filed 21 October 2005, is acceptable and has renewed the consideration of the instant Application. Claims 1-43, 45, 46, and 48-73 are pending.

This Office Action is responsive to the Amendment filed 6 October 2005, in which claims 1, 12, 13, 23, 24, 29, 37, 40, 43 and 46 were amended. Also, claims 56-73 were added in the Amendment.

**2. Request for copy of Applicant's response on floppy disk:**

Please help expedite the prosecution of this application by including, along with your amendment response in paper form, an electronic file copy in WordPerfect, Microsoft Word, or in ASCII text format on a 3½ inch IBM format floppy disk.

Please include all pending claims along with your responsive remarks. Only the paper copy will be entered -- your floppy disk file will be considered a duplicate copy. Signatures are not required on the disk copy. The floppy disk copy is not mandatory; however, it will help expedite the processing of your application.

Your cooperation is appreciated.

3. Allowable Subject Matter

4. Claims 12, 23, 24 and 40 are allowable.

5. Claim Rejections - 35 U.S.C. § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-11 , 13-22, 25-39, 41 , 43, 45, 46, 48-52 and 56-73 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sharrit et al. (U.S. Patent 5,999,990) in view of Savitzky et al. (U.S. Patent 5,732,261) and Songer et al. (U.S. Patent 6,763,327).

Art Unit: 2126

As to claim 1, Sharrit teaches

a reconfigurable wireless network communication apparatus (communicator 10) comprising a plurality of kernels (configurations of reconfigurable resource units RRUs),

a plurality of software objects (library of configuration files) including a first subset of said software objects (one set / different set of processing functions), each software object in said first subset of said software objects associated with (used to configure RRUs) a different kernel in said plurality of kernels so that a change to a software object (new / updated configuration files, col. 4, lines 14-15) in said first subset of said software objects results in a change in said kernel (RRUs restructure themselves in accordance with the configuration information) associated with said software object. See col. 1, line 54 - col. 2, line 58. It is noted that a set of RRUs with its respective configuration form a kernel which typically is a collection of system management functions.

While Sharrit provides a virtual machine interface (dynamically reconfigured RRUs) for the reconfigurable wireless (col. 10, lines 46-50) network communication apparatus (communicator), Sharrit does not teach that the plurality of software objects are packaged into an object-oriented virtual machine interface.

Savitzky teaches packaging the plurality of software objects (components / objects, col. 3, lines 60-63) into an object-oriented virtual machine interface (REST object-oriented application framework, col. 3, lines 33-55) for a reconfigurable (capable of communicating with almost any remote machine) network communication apparatus. Col. 5, lines 24-67.

It would have been obvious to package the plurality of software objects into an object-oriented virtual machine interface for the reconfigurable wireless network communication apparatus in Sharrit, as one skilled in the art would have combined the teachings of Sharrit and Savitzky because Sharrit desires incorporating new services to reconfigure resources (col. 5, lines 52-57) and Savitzky provides a mechanism to do so (col. 21, line 65 - col. 22, line 8). Sharrit as modified by Savitzky does not explicitly disclose the kernels are designed for specific functions.

Songer teaches the use of multiple "kernel objects . . . corresponding to various combinations of these configuration optionss", col. 7 lines 4-7 in order to facilitate the interface mechanism, which corresponds to the limitation of each kernel is designed to perform a specific processing function. It would have been obvious to combine Songer's teachings with Sharrit as modified because the abstraction layer of Songer Col. 5 line 65 – col. 6 line 18 would provide the requisite management over kernel objects in the VM interface for reconigurable systems as taught by Sharrit and Savitsky.

Art Unit: 2126

As to claim 2, Sharrit teaches said plurality of software objects includes a second subset (library of configuration files) of said software objects, each software object in said second subset of said software objects having at Least one adjustable attribute (new / updated configuration files, one set / different set of processing functions). Col. 1, line 54 - col. 2, line 58.

As to claim 3, Sharrit teaches at Least one adjustable 'attribute is a static or dynamic attribute (dynamically altered processing). Col. 1, lines 56-59.

As to claim 4, Sharrit teaches a kernel in said plurality of kernels is configurable in accordance with a communication protocol (transmit/receive signals into/from wireless communication channel). Col. 2, lines 6-11.

As to claims 5-8, CDMA and its variations: IS-95 CDMA, IS-95B CDMA, CDMA TIA IS2000, TIA IS 2000A, WCDMA, cdma2000, and ARIB WCDMA, and TDMA and its variations such as IS-136 TDMA are well known wireless communication protocols. It would have been obvious to support these protocols/configurations in the communicator of Sharrit.

As to claim 9, Sharrit teaches a software object in said plurality of software objects is a searcher object, a code generation unit object (Linkage functionality, col. 5, lines 56-57) or a finger object. It is noted that the three alternatives linked by "or" is interpreted as requiring only one alternative.

As to claim 10, Sharrit teaches a software object in said plurality of software objects is a matched filter object or a combiner object (combine RRus/functions, col. 8, lines 17-40). It is noted that the two alternatives linked by "or" is interpreted as requiring only one.

As to claim 11, uplink and downlink are typical functions of wireless communication. Sharrit teaches configuring the communicator to implement various functions of wireless communication. Therefore, it would have been obvious to implement uplink and downlink functions, with corresponding software objects, in Sharrit.

As to claim 13, note discussion of claim 1. Further, Sharrit as modified by Savitzky provides virtual machine (Savitzky, object-oriented application framework, col. 3, lines 33-55).

As to claims 14-15, note discussions of claims 2-3, respectively.

As to claim 16, Sharrit as modified by Savitzky teaches (Savitzky, object-oriented application framework) an application program interface comprising a plurality of software routines (API of classes), each software routine in said plurality of software routines representing a different communication protocol (machine

Art Unit: 2126

models), wherein said plurality of software routines comprise software calls to said plurality of software objects (API); and an application program comprising software calls to said plurality of software routines (application layer 140). Col. 5, line 23 - col. 6, line 64.

As to claims 17, 20, Sharrit teaches compiling functionality (linkage functionality, col. 5, lines 56-57). Therefore, it would have been obvious to use a compiler to provide such functionality. Further, JIT compiler for JVM was well known at the time when the present application was filed. Translating is a default function of a typical compiler.

As to claims 18, 21, Sharrit teaches resource allocator (resource allocation unit) configured to receive said machine-readable instructions and issue a signal/command to configure a kernel in said plurality of kernels. Col. 7, lines 14-67.

As to claim 19, Sharrit as modified by Savitzky teaches (Savitzky) program for utilizing a plurality of software objects (application layer 140, Col. 5, line 23 – col. 6, line 64).

As to claim 22, note discussion of claims 9 and 11.

As to claims 25-28, note discussions of claims 5-8.

As to claim 29, it is basically a method claim of claim 1, thus note discussion of claim 1. Sharrit as modified by Savitzky further teaches reconfigurable multi-protocol communication (Sharrit, support new and modified signal formats, support wireline and wireless communications, col. 8, lines 45-51; col. 10, lines 46-50), interconnect structure (Savitzky, framework, fig. 2), and attribute value (Sharrit, processing functions, col. 2, Lines 35-50., Savitzky, component's state, fig. 7).

As to claim 30, Sharrit as modified by Savitzky teaches a hierarchical relationship (class hierarchies of the object-oriented framework).

As to claim 31, Sharrit as modified by Savitzky teaches (Savitzky) an application Program (application layer) that includes software calls (APIs) to said plurality of software objects.

As to claims 32, 34, the reconfigurable hardware and software of the system of Sharrit as modified by Savitzky provides a virtual execution environment for each combination of application and communication protocols, i.e., providing a software virtual machine. Sharrit as modified by Savitzky teaches issuing an instruction for controlling a kernel in said plurality of kernels (controller, user).

Art Unit: 2126

Such instruction being issued from the software virtual machine/environment would have been an obvious choice in view of the system architecture of Sharrit as modified by Savitzky which interfaces a user and the system hardware resources.

As to claim 33, note discussion of claim 17.

As to claim 34, Sharrit as modified by Savitzky teaches issuing, from said software virtual machine, an instruction for controlling a kernel in said plurality of kernels.

As to claim 35, note discussion of claim 16.

As to claim 36, note discussion of claim 16.

As to claim 37, it is basically a program product claim of claim 29, thus note claim 29 for discussion. Note the equivalence of instantiating/creating.

As to claim 38, note discussion of claim 35 and the equivalence of the plurality of standards / plurality of protocols.

As to claim 39, note discussion of claim 9 for code generation unit object. Search, finger, uplink and downlink are typical functions of wireless communication.

Sharrit teaches configuring the communicator to implement various functions of wireless communication. Therefore, it would have been obvious to implement search, finger, uplink and downlink functions, 'with corresponding software objects, in Sharrit as modified.

As to claim 41, note discussion of claim 5.

As to claim 43, it is basically a method claim of claim 1 and thus note the discussion of claim 1 supra. Specifically, the limitation of an object-oriented virtual machine interface ... said software object. Providing such an object-oriented virtual machine interface would have been inherent to the system of Sharrit as modified by Savitzky. Sharrit as modified by Savitzky further teaches (Savitzky) parsing an application program that designates a communication protocol (application services, col. 7, line 21 - 50). Producing machine-readable data is a necessary step to realize the control / reconfiguration functions of Sharrit as modified. Further, Sharrit teaches compiling functionality (col. 5, lines 56-57) which typically includes parsing and code generating. Sharrit teaches first software object selected from the plurality of software objects (controller allocate RRU, col. 1, line 54 - col. 2, line 5).

Art Unit: 2126

As to claims 45, 48, Sharrit teaches function or procedure (Library, discussion of claim 1).

As to claim 46, note discussion of claim 43.

As to claims 49-52, Sharrit as modified teaches (Savitzky, fig. 2) one software object objects is associated with at least two kernels and at Least two kernels are associated with one software object in that one application can output to more than one devices (copier and fax machine) and more than one application can access the same device (such as fax machine).

As to claims 56-61, Sharrit teaches “dynamically reconfigured RRUs”, col. 10 lines 46-50 that correspond to the recitation of the kernels may be configured for different parameters dynamically.

As to claims 62-67, Sharrit teaches the objects may be updated according to the states of their associated kernels dynamically (new / updated configuration files – used to configure RRUs, col. 4 lines 14-57).

As to claims 68-73, Sharrit teaches a change in a kernel of the plurality of kernels results in a change in the software object associated with that kernel (RRUs restructure themselves in accordance with the configuration information, col. 1, line 54 - col. 2, line 58).

7. Claims 53-55 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sharrit, Savitzky and qq as applied to claims 1 and 13, respectively, and further in view of Kwon et al (U. S. Patent 6,151,328).

As to claims 53-55, Kwon teaches that wireless communication functions, including searcher (searcher 117), finger (finger 119), and matched filter (filters 114-116). Col. 10, line 53 - col. 11, line 12. Further, uplink and downlink are also typical functions of wireless communication.

Sharrit teaches configuring the communicator to implement various functions of wireless communication with corresponding software objects. It would have been obvious to implement searcher, finger, matched filter, uplink and downlink functions, with corresponding software objects in Sharrit, as one skilled in the art would have combined the teachings of Sharrit as modified and Kwon because Sharrit desires adapting to varying system requirements (col. 1, lines 54-56) and Kwon provides a mechanism to do so (in consideration of different channel environments, col. 1, lines 55-60).

Art Unit: 2126

**8. Response to Applicant's Arguments:**

During patent examination, the pending claims must be "given their broadest reasonable interpretation consistent with the specification." *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000).

Limitations appearing in the specification but not recited in the claim are not read into the claim. *E-Pass Techs., Inc. v. 3Com Corp.*, 343 F.3d 1364, 1369, 67 USPQ2d 1947, 1950 (Fed. Cir. 2003).

Applicant's remarks filed 6 October 2005 have been considered, but the arguments are moot in view of the new grounds of rejection.

**Contact Information:**

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system.

Status information for published applications may be obtained from either Private-PAIR or Public-PAIR.

Status information for unpublished applications is available through Private-PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

Should you have questions regarding access to the PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

All responses sent by U.S. Mail should be mailed to:

**Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450**

Hand carried responses should be delivered to the *Customer Service Window* (Randolph Building, 401 Dulany Street, Alexandria, Virginia 22314) and, if submitting an electronic copy on floppy or CD, to expedite its processing, please notify the below identified examiner prior to delivery, so that the Applicant can "handoff" the electronic copy directly to the examiner.

Art Unit: 2126

The fax number (571) 273-8300 should be used for all facsimile submissions to the Office.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist at **(571) 272-2100**.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Opie at (571) 272-3766 or via e-mail at [George.Opie@uspto.gov](mailto:George.Opie@uspto.gov). Internet e-mail should not be used where sensitive data will be exchanged or where there exists a possibility that sensitive data could be identified unless there is an express waiver of the confidentiality requirements under 35 U.S.C. 122 by the Applicant. Sensitive data includes confidential information related to patent applications.



WILLIAM THOMSON  
SUPERVISORY PATENT EXAMINER